

OVERVIEW

This report, which is required by the S.C. Solid Waste Policy and Management Act of 1991 (Act), provides an overview of the amount of municipal solid waste (MSW) recycled and disposed of in South Carolina for fiscal year (FY) 2006 (July 1, 2005 – June 30, 2006).

The Act established a comprehensive approach to managing solid waste. The Act, for example, sets recycling and disposal goals, requires the development of a state solid waste management plan as well as county plans, and provides advanced recycling fees to fund all of the S.C. Department of Health and Environmental Control's (DHEC) solid waste programs – including all grant programs.

The Act also created DHEC's Office of Solid Waste Reduction and Recycling (Office) to provide technical assistance, education and outreach programs as well as grant funding to local governments, schools and colleges/universities. Grant programs include solid waste, used motor oil, waste tire, college and university as well as school grants. Since the grant programs began in FY94, about \$47 million have been awarded including \$3.2 million in FY06.

In addition, the Act created the Recycling Market Development Advisory Council (RMDAC). DHEC funds the staff and activities of RMDAC. The mission of RMDAC is to assist in the development of markets in South Carolina for recovered materials and products with recycled content.

The Act also requires county governments to report the amount of MSW recycled within their county to DHEC each year. Permitted solid waste facilities also are required to report the amount of waste disposed of at their facilities annually to DHEC.

The Act originally set a state recycling goal of 25 percent and a goal of reducing by 30 percent the amount of solid waste disposed of at MSW landfills and incinerators. Both rates were calculated by weight. Both were measured from the total amount of solid waste generated. Both were measured from a baseline of FY93 and were to be met by FY97. Both goals were met in FY96.

The Act was amended in October 2000 to reflect new state recycling and disposal goals. The recycling goal was changed to 35 percent of the MSW stream. The disposal goal was changed to 3.5 pounds of MSW per person per day. Both of these goals were to be met by FY05. The state did not reach either goal. DHEC will ask the S.C. Legislature to extend the deadline for meeting those goals until FY12.

The October 2000 amendment also adopted the U.S. Environmental Protection Agency's (U.S. EPA) definition of MSW with two exceptions. The Office considers tire-derived fuel and used motor oil (from do-it-yourselfers) that is collected and recycled as an alternative fuel source as MSW. South Carolina includes both of these commodities when calculating its MSW recycling rate while the U.S. EPA does not.

WHAT IS THE DEFINITION OF MSW?

MSW has numerous definitions across the country – making it difficult, if not impossible – to compare recycling rates and disposal numbers between states.

For example, many states, when measuring their recycling efforts, count construction and demolition (C&D) debris, automobile bodies, land-clearing debris, industrial solid waste and even biosolids – thereby increasing their overall recycling rate. In contrast, South Carolina does not count those materials towards its measured recycling rate.

In 2000, South Carolina adopted the U.S. EPA definition of MSW – which is one of the most stringent in the nation. The state defines MSW as the combined residential, commercial, institutional/non-profit and industrial packaging/office waste generated. This includes paper, cans, bottles, food scraps, yard trimmings, packaging and other items. It does not include industrial process waste like scraps and by-products from the manufacturing process, C&D debris, automobile bodies, agricultural waste, combustion ash, mining waste and sewage sludge as well as hazardous, infectious and radioactive waste.

HOW MUCH **MSW WAS RECYCLED?**

More than 4.9 million tons of MSW was generated in South Carolina in FY06 – a 7 percent increase from the previous FY. Of that amount:

- 1,510,409 tons (30.4 percent) were recycled. By comparison, 1,222,098 tons (26.2 percent) were recycled in FY05;
- 224,506 tons (4.5 percent) were disposed of at a waste-to-energy facility (incinerator) in Charleston County; and
- 3,239,763 tons (65.1 percent) were disposed of in MSW landfills.

This recycling data also can be converted to pounds per person per day (p/p/d). In other words, South Carolinians recycled 2.0 p/p/d.

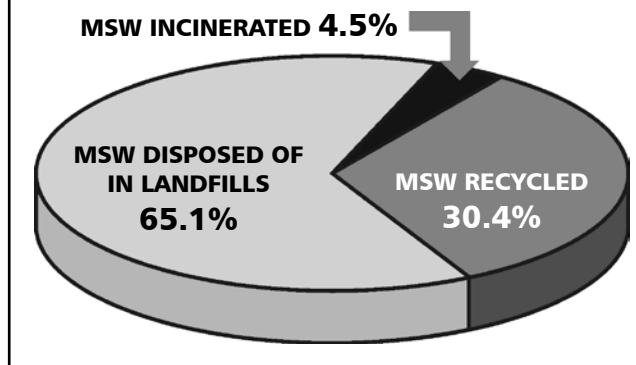
The amount of MSW disposed of per capita decreased slightly from 4.5 p/p/d in FY05 to 4.4 p/p/d in FY06. This rate has changed little in the past six years and remains above the state's disposal goal of 3.5 p/p/d.

South Carolina saw a significant increase in both the recycling rate and the actual tonnages recycled for FY06. Two factors contributed to this increase.

The first – staff within the Office secured additional tonnages from companies that had not previously reported to counties. Several steps were taken to ensure that the tonnages reported were not previously counted.

The Office contacted several large companies and recycling industries to obtain tonnages that had been previously unreported. Many of those who responded were large retailers and grocery store chains. Also, a member of the Solid Waste Advisory Council put staff in touch with the S.C. Manufacturers Alliance, which distributed the reporting form electronically. In addition, Sonoco Products Company was instrumental in providing additional tonnages

CHART 2.1: MSW Management in South Carolina



beyond what the local governments had already reported. These tonnages represented additional MSW that was recycled, but not captured elsewhere. The Office believes that working with recycling processors such as Sonoco is key to obtaining an accurate recycling rate. The tonnages reported by these companies were distributed across all

46 counties based on their population. Population figures were taken from the U.S. Census Bureau.

Secondly, counties reported that 436,652 tons were recycled in their local residential programs – an increase of 38,924 tons from the previous FY.

Again this year, data was collected from various sources at the state level and was distributed to counties, based on population or location of the source. These additional recycling tonnages came from tire processors, composting facilities, the state's electronics waste contractor as well as state agencies and colleges/universities.

Despite the considerable increase in the amount of material recycled, there still is much that can be done to reach the state's recycling goal of 35 percent. The preservation of landfill capacity for future use through recycling efforts will only go so far. Most local recycling programs are underused. Residents do not take full advantage of the recycling services offered to them. There needs to be increased participation. In addition, residents need to throw away less, make better choices when shopping and purchase products with little to no packaging or if there is packaging, make sure it can be recycled in their curbside or drop-off recycling program.

And while South Carolina has hundreds of drop-off sites and curbside programs, there also needs to be other ways for people to recycle. Whether it is at work, school or local events (concerts, sporting venues, walks/races, outdoor festivals), South Carolinians should be given more opportunities to recycle.

For example, businesses are encouraged to provide employees the opportunity to recycle some of the most commonly generated workplace materials: office paper; cardboard; and plastic and aluminum beverage containers. Local governments are encouraged to provide business recycling programs – whether offering collection services or allowing businesses to use the drop-off recycling centers.

Schools are asked to start programs to collect classroom paper when local markets and programs make it feasible. Local governments are encouraged to provide educational materials to students and outlets for recycling.

Local governments are encouraged to set up recycling containers at local events such as festivals and races or work with sporting associations to provide

recycling during baseball, basketball, football and soccer games.

Despite a significant increase in this year's recycling rate, there is still underreporting. There are a number of factors that support this statement. There is a lack of response from recycling processors. Some counties simply do not solicit recycling information from local companies. And many companies do not respond to county requests. There are South Carolina businesses or companies that generate cardboard for recycling, but send it to their distribution center that is located out of state and do not report these efforts.

Until every effort is recognized and counted, there will be more recycling taking place than is reported each year. Office staff will continue to work with all entities to capture as much recycling data as possible.

HOW MUCH **TOTAL SOLID WASTE WAS RECYCLED?**

While South Carolina narrowly defines what can be included in its measured recycling rate, it also is worth noting the total amount of solid waste kept out of S.C. landfills. More than 6.5 million tons (44 percent) of the total solid waste generated were recycled in FY06. While the actual tonnages reflect an increase of 200,000 tons from FY05, the recycling rate decreased by 1 percentage point. This indicates that there was an even greater increase in the amount of total solid waste disposed of in landfills from the previous year, thereby impacting the total recycling rate. Industries should continue to look for ways to recycle more and throw away less in their daily operations.

Of the 6.5 million tons of total solid waste recycled, the majority was processing or manufacturing waste – scraps or by-products – that are put back into the process or taken off site for recycling. Either way, the impact of keeping such materials out of landfills is significant.

The benefits of recycling extend beyond the environment and also include economic gains for the industry. Often, it is cheaper for industries to recycle than to dispose of materials, thereby impacting the bottom line. In addition, this extends the life of landfills and reduces the need to construct new ones.



For the most current listing of local government recycling programs, visit www.scdhec.gov/recycle/html/counties.html.

PREVIOUS YEAR HIGHLIGHTS

The recycling rate increased 4.2 percentage points from 26.2 percent in FY05 to 30.4 percent in FY06. The actual MSW recycling tonnages increased by 24 percent – from 1.2 million in FY05 to 1.5 million in FY06. The increases that did take place may be partially related to efforts taken in response to last year's recommendations. A number of these actions were to increase participation in local recycling programs.

Many of the efforts that were mentioned in the FY05 report continued through FY06 – providing another layer of technical assistance and outreach to local governments as well as residents who participate in South Carolina's recycling programs. The most concerted effort came by assigning staff to regions of the state. There are several benefits of this effort, but staff primarily serves as liaisons to provide a higher level of customer service and to enhance communication with county and municipal staff. This approach has worked. Staff has assisted counties by providing equipment and market information, helping to write articles for their local papers, offering guidance when determining needs for grant applications and coordinating meetings between city and county programs.

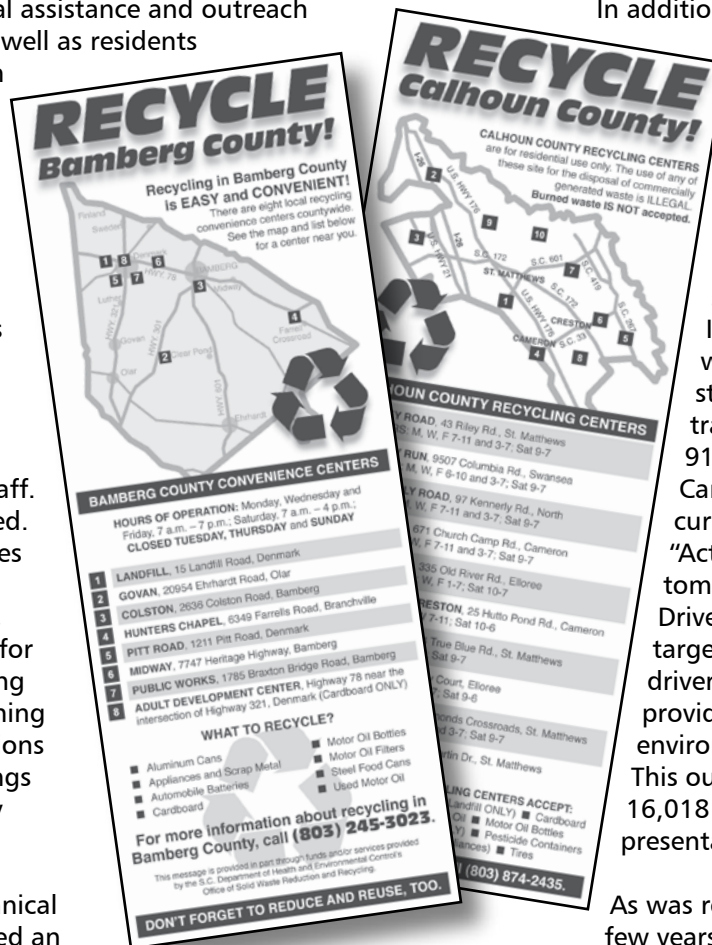
Other outreach and technical assistance efforts included an in-house graphic arts design service that provided customized artwork for local recycling programs. Some of the projects completed during FY06 are listed below.

- Nineteen brochures – providing information on what, how, when and where to recycle in city and county recycling programs – were created or updated. See page 11 for an example.

- Artwork for three used motor oil recycling billboards was created for Greenville and Spartanburg counties as well as the Tri-County Solid Waste Authority (SWA) – covering Edgefield, McCormick and Saluda counties.
- Newspaper advertisements (pictured below) promoting recycling also were created for Aiken, Bamberg, Calhoun and Williamsburg counties as well as the Tri-County SWA and the City of Easley.

In addition, several of the Office's educational programs continued to experience successes in FY06. Action in the Classroom – a hands-on recycling presentation for fifth graders that is available at no cost – was offered to schools around the state. In FY06, 370 presentations were made to 16,792 students. In addition, 29 trainings were held for 910 teachers on the South Carolina-based environmental curriculum supplement, "Action for a cleaner tomorrow." The Green Driver Project continued to target students in high school driver education classes by providing an overview of the environmental impact of driving. This outreach effort reached 16,018 students through 664 presentations in FY06.

As was recommended for the past few years, research continued to be at the forefront of the Office's efforts in measuring the impact or effectiveness of South Carolina's recycling programs. As stated on page 3, a study was commissioned by DHEC to determine the impact of recycling on the state's economy. The results were impressive. The recycling industry is directly responsible for more than 15,000 jobs, \$1.5 billion in annual personal income and \$69 million in tax revenue each year.



DHEC modified its solid waste grant program for FY06 so that local governments could apply for funding to assist in establishing the infrastructure needed to increase the recycling of not only residential cardboard, but commercial cardboard as well. This material, which represents nearly one-third of all material generated in the state, is available in high volume, has stable markets and serves as a revenue maker for most programs.

A pilot project designed to increase participation in local recycling programs began in FY06. The project (modeled after a Charleston County effort) includes direct mail pieces and neighborhood outreach efforts in four municipalities. Conclusions from the project will be drawn in next year's report.

The Office streamlined the way it collected tonnages from counties by implementing a Web-based data management system that allows counties to enter and track their recycling tonnages throughout the

year. The system – also known as Re-TRAC – allows counties to generate their own reports. This method of reporting eliminates a significant amount of paper and gives DHEC staff the ability to efficiently verify data and also generate its own reports.

Eleven recycling center attendant trainings took place in FY06. Overall, 225 individuals in 10 counties attended the trainings. But more needs to be done to educate these key players in statewide recycling programs. Please see page 14 for a discussion on other plans for attendant trainings.

The Office continued to promote the recycling of fluorescent bulbs that contain mercury. Direct mail pieces were distributed to all tanning salons as well as several thousand businesses throughout the state. A pilot program also was established in which schools were provided collection boxes and free recycling services for their fluorescent bulbs. Much of this work was funded by a grant from the U.S. EPA.

REVISIONS TO THE S.C. SOLID WASTE MANAGEMENT PLAN

The S.C. Solid Waste Management Plan (Plan) was written in 1992 and revised in 1999. During the past few years, DHEC has received several applications for proposed solid waste management facilities that planned to use new and emerging technologies to manage a variety of solid waste streams. Because of uncertainties about these technologies, DHEC believed it necessary to revise the Plan to include:

- a comprehensive analysis of new and emerging technologies;
- the amounts and types of waste being generated that would use these facilities; and

- a determination of the need for facilities using the new and emerging technologies.

In FY06, the DHEC Board approved these revisions to the Plan that addressed new and emerging technologies. They addressed limits to be imposed under Research, Development and Demonstration Permits for facilities that use emerging technologies.

These limits addressed the protection of the public health and the environment, technological feasibility, cost-effectiveness and the need for the proposed facilities.

RECOMMENDATIONS

As noted on page 1, DHEC is required to make recommendations to the Governor and General Assembly for improving solid waste management in South Carolina. The following recommendations involve local governments and DHEC as well as S.C. businesses and industries. The basic premise of the recommendations is how can all South Carolinians manage solid waste more efficiently and effectively to meet the state's recycling goal (35 percent of the state's MSW) and disposal goal (3.5. p/p/d).

- **PASS LEGISLATION:** Electronic waste and composting regulations need to be in place to further the state's recycling efforts.

Electronic waste – also known as E-waste – continues to be one of the fastest growing waste streams in the nation. Each year hundreds of thousands of computers, monitors, televisions and other electronics become obsolete. Beyond the sheer numbers of unwanted electronics, E-waste is one of the largest known sources of heavy metals and organic pollutants in the nation's waste stream. Some electronics – usually those with cathode ray tubes (CRTs), circuit boards and mercury switches – contain hazardous materials including lead, mercury, cadmium and chromium. If not properly managed, E-waste may be hazardous to human health and the environment.

South Carolina faces the same issue as most other states. How will it properly manage (reuse, recycle and if necessary properly dispose of) E-waste? Four states have passed legislation and many other states are considering legislation to establish collection programs to ensure that electronics waste from households is properly managed. As of March 2007, three bills had been introduced in the S.C. Legislature to address E-waste. DHEC encourages, supports and recommends legislation that will result in the proper management of E-waste with an emphasis on reuse and recycling as well as assisting and providing funding for local governments to set up E-waste collection programs. South Carolina already has a successful advanced recycling fee on tires, lead-acid batteries, motor oil and large appliances. DHEC is confident that a similar program targeting E-waste would be as successful as the other programs.

According to the U.S. EPA's "Municipal Solid Waste Report 2005 Facts and Figures," yard trimmings and food scraps make up almost 25 percent of the MSW generated in the nation. Taking the U.S. EPA number and applying it to the amount of MSW generated in South Carolina (and subtracting what was already reported), DHEC estimates there is roughly another 1 million tons of organic material available for recycling in the state.

The environmental benefits of any type of composting – backyard to large-scale – are obvious. The vast majority of this untapped 1 million tons of material could be counted as part of the state's MSW recycling efforts if managed by large-scale commercial composting facilities. These facilities would need material and provide a composting market for local governments. It must be noted that yard trimmings are banned from disposal in the state's MSW landfills. Unfortunately, in many cases, the ban has simply resulted in yard trimmings being disposed of in non-MSW landfills with few local governments setting up large-scale composting programs for a variety of reasons including the lack of markets.

The major obstacle facing the development of large-scale composting in the state is the lack of regulations. Commercial companies are not willing to do business in South Carolina without clearly understanding the regulatory requirements. Given that, DHEC is committed to completing composting regulations that encourage and support large-scale composting.

- **IMPROVE REPORTING:** Reporting – more importantly, reporting accurately – is an absolute necessity in knowing where the state is, where it has been and where it may be able to go in terms of South Carolina's recycling efforts. DHEC made a concerted effort in past years to streamline data collection, including the introduction of a Web-based data management system – making it easier for county governments to report. In addition, in FY06, DHEC expanded its efforts in collecting data from sources that previously had not reported. DHEC – realizing the obstacles – challenges county governments to prioritize their efforts to collect more and more accurate

recycling data from businesses, hospitals, retailers, restaurants and large industries. DHEC is committed to assisting county governments in this effort. In addition, commercial businesses and industries, schools and hospitals are all encouraged to work with their local county recycling coordinator to report their recycling efforts.

- **INCREASE PARTICIPATION:** Studies continue to show that one of the biggest challenges facing recycling is under-participation. The primary causes of the lack of participation in programs are simple – lack of convenience followed closely by confusion, that is, a lack of understanding what to recycle. DHEC and local governments must continue to address these issues, recognizing that funding is most often the barrier to improving local government recycling services. Continuing to address the issue must be done in the context of recognizing that local government recycling programs always compete with higher priority services (law enforcement, ambulance, water, roads and so on). DHEC is committed to assisting county governments in this effort.

- **IMPROVE SOLID WASTE MANAGEMENT PLANS:** Planning is a comprehensive and long-term approach to managing solid waste in South Carolina. It involves cooperation among the state, county and other local governments, the public and the private sector. While technical requirements for solid waste facilities are determined by permitting regulations, solid waste planning requirements are more diffused and are controlled by a combination of state regulations, the state solid waste management plan, local land-use plans, county or regional solid waste management plans and local zoning ordinances.

The Act gives DHEC responsibility for statewide solid waste planning efforts. The Act gives DHEC authority to limit the placement of landfills and the tonnage limits for those landfills, specifically outlined in the Demonstration of Need regulation (www.scdhec.gov/lwm/regs/r61-107_17.pdf). In addition, the state addresses solid waste policy in the S.C. Solid Waste Management Plan, also under the authority of the Act.

Local governments are charged in the Act with anticipating the amount of solid waste generated and the disposal capacity that will be needed to manage that waste. Local governments are

to address these needs within their local solid waste plans. These plans may further limit the placement and operation of solid waste facilities beyond the limits imposed by DHEC.

According to the Act, DHEC cannot approve a permit that is not consistent with both the state and the local solid waste management plan. In 2004, the S.C. Supreme Court ruled that DHEC is the arbiter of what is or is not consistent with a local plan. Prior to that ruling, DHEC would make consistency decisions based on “letters of consistency” that were issued by the local government, i.e., the local government was given authority to determine whether or not a facility was consistent with their plan. Since the S.C. Supreme Court ruling, DHEC has had that authority and must interpret the local plan. For this reason, it is important that the local plan be clear, concise and based on factual data and research. It also is imperative that the local plan – and any updates to the plan – be drafted and adopted in accordance with requirements of the Act. Updates must be adopted as outlined in the original local plan.

In order to be permitted, facilities also must be deemed consistent with local zoning and land-use plans. These plans give communities a voice in determining where solid waste facilities may be located. It is important that cities and counties use the correct tools for making planning decisions. County or regional solid waste management plans should address the solid waste generation rates and the disposal capacity required to manage that waste. Zoning and land-use plans should be used to address the aesthetic or geographical restrictions regarding how and where those facilities may be placed.

The 2004 S.C. Supreme Court ruling has resulted in numerous lawsuits related to the consistency of potential solid waste facilities with local solid waste management plans. DHEC recommends that every county and solid waste region carefully review its solid waste management plan and its local zoning as well as local land-use ordinances to determine whether or not it reflects the intention of the county or region. Plans that are out-of-date, are incorrectly adopted or simply do not reflect the vision of the community, should be carefully and legally revised. DHEC is committed to providing assistance to local governments as needed to enable them to best meet their responsibilities for solid waste planning.

OFFICE ACTIONS TO ADDRESS RECOMMENDATIONS

The Office has identified areas in which specific actions will be taken to support the recommendations made on page 12. These actions will further the state's efforts to reach the recycling and disposal goals.

■ **ENCOURAGE BUSINESS RECYCLING AND REPORTING:** The Office will develop and offer a new and improved program encouraging businesses to recycle and report their recycling activities. The reason for this is simple. As much as 60 percent of the total MSW generated is from businesses. Given that, the S.C. Smart Business Recycling Program will be a priority of the Office and will include a full-time staff member who will manage the program. All program efforts will be coordinated with county recycling coordinators. The program will offer technical assistance focusing on best management practices, reporting and markets. The program will replace the Business Recycling Assistance Program, but will include the same partners.

■ **EXPAND DATA COLLECTION CAPABILITIES:** In FY06, work began on the modification of an existing Web-based data management system that allows counties to input their recycling data electronically rather than submitting printed copies. The program allows for multiple entries and updates the totals each time numbers are entered. Plans are underway to incorporate reporting by the business community into this data management system. The goal of this effort is to make reporting as simple as possible for businesses, which should result in more reporting as well as more accurate reporting.

■ **INCREASE FIBER RECOVERY THROUGH A GRANT MODIFICATION:** Based on the preliminary success of changes made to the solid waste grant program, further modifications will take place in future grant cycles. These changes will allow funding to be directed toward specific commodities including office paper, cardboard and paperboard.

■ **ENHANCE PROFESSIONAL DEVELOPMENT OPPORTUNITIES:** Professional development for recycling coordinators and other solid waste professionals was a recommendation in the FY05 report. In FY06, work began to develop a

curriculum training manual and workshop. In FY07, work will continue on this effort with the goal of offering the first Recycling Professional Certification Workshop in FY08. In addition, the Office has developed, in partnership with local governments, a successful training program for recycling center attendants. Attendants have one of the most important roles in the state's recycling efforts – including, perhaps, the key opportunity to educate and encourage residents. The Office will expand and enhance its current training program – offered to local governments across the state – with the production of a video that will feature some of the best recycling centers in the state.

■ **CONTINUE PUBLIC EDUCATION EFFORTS:** What makes public education campaigns successful? Many things, but in particular, most successful campaigns have a clear, consistent and frequently delivered message. The message can be delivered a number of ways including Web, direct mail, media (TV, newspaper, radio), public transportation signage, teacher/student programs and speaking to community groups/neighborhood associations.

As noted on page 10, the Office began work on a neighborhood effort to increase participation rates through a direct mail campaign to specific communities, securing neighborhood recycling leaders, setting up competitions and working more closely with other community stakeholders. It is modeled after a program that began in Charleston County and has experienced great success.

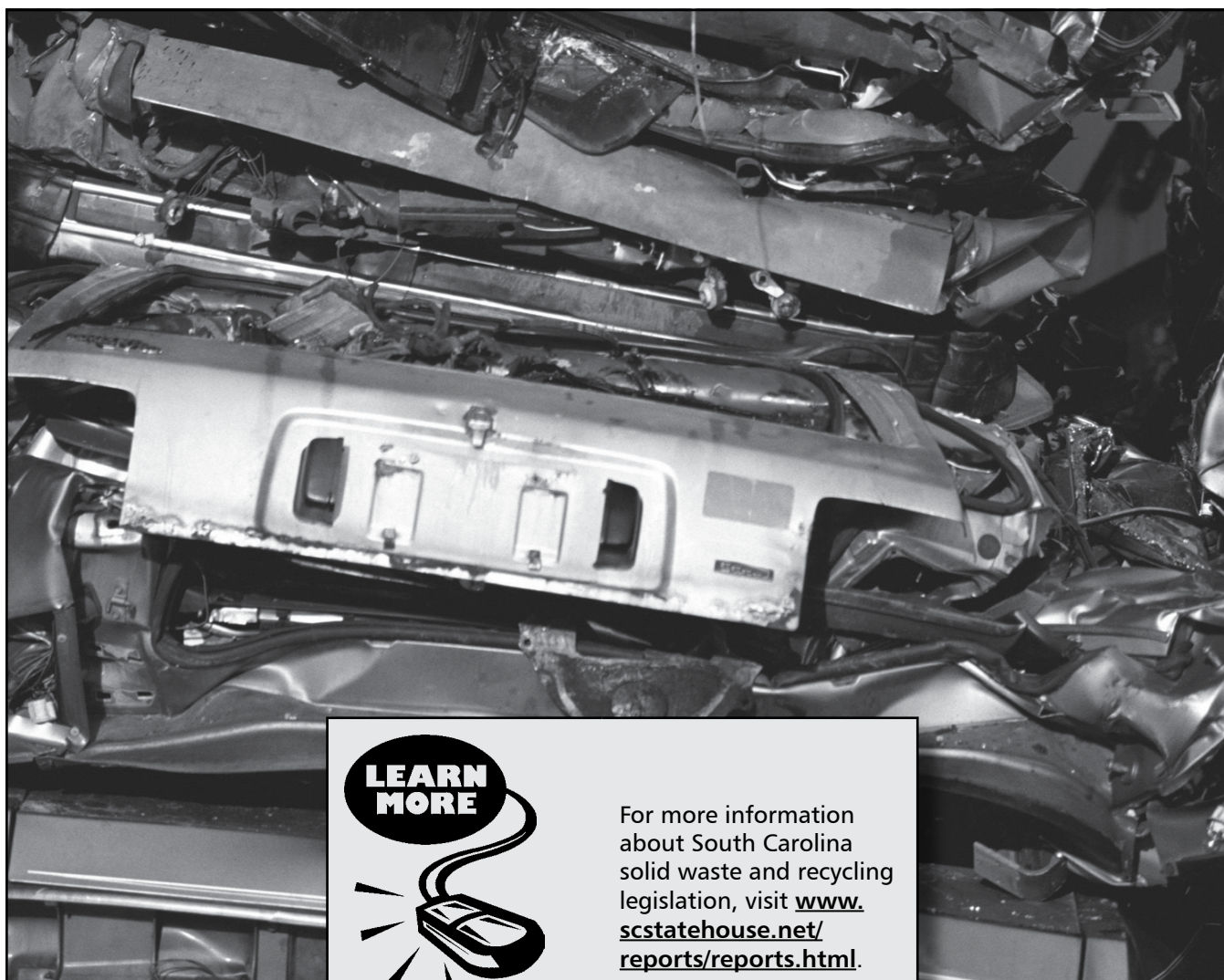
■ **COORDINATE SOLID WASTE DIRECTORS MEETINGS:** At a recent meeting regarding recycling services, a group of solid waste directors felt it would be advantageous for all solid waste directors to meet and discuss the issues they face. The Office plans to help solid waste directors, public works directors and others in their efforts to develop an informal work group and perhaps sponsor an annual workshop. The Office hopes this new effort will not only improve communications with solid waste directors but also allow the Office to receive their support on recycling issues and encourage regionalization.

LEGISLATIVE SUMMARY

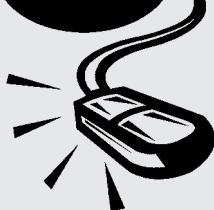
During the FY06 Legislative Session of the South Carolina General Assembly, a section addressing mercury switches in automobiles was added to the S.C. Solid Waste Policy and Management Act (Act). Section 44-96-185 of the Act requires the removal of mercury switches from end-of-life vehicles before the vehicles are placed in the production stream of a steel recycling facility. The automobile manufacturer's End-of-Life Vehicle Solutions (ELVS) program has established a collection and recycling program to assist South Carolina and other states in the recycling of mercury switches from vehicles.

On the federal level, regulations addressing the receipt of electronic documents from solid waste facilities were added to the Code of Federal Regulations. Sections 40 CFR Part 257.30(d) and 40 CFR Part 258.29(d) were added that state, "The Director of an approved state program may receive electronic documents only if the state program includes the requirements of 40CFR Part 3 (Electronic Reporting).

There were no changes to the Federal Used Oil Regulation, 40 CFR Part 279.



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For more information about South Carolina solid waste and recycling legislation, visit www.scstatehouse.net/reports/reports.html.

